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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,822	09/30/2003	Andrew May	134379	6650

6147 7590 09/22/2005

GENERAL ELECTRIC COMPANY  
GLOBAL RESEARCH  
PATENT DOCKET RM. BLDG. K1-4A59  
NISKAYUNA, NY 12309

EXAMINER
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JONES, DIANE ELIZABETH

ART UNIT	PAPER NUMBER
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2862

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/675,822

Applicant(s)

MAY ET AL.

Examiner

Diane E. Jones

Art Unit

2862

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24-33 is/are allowed.
- 6) ☒ Claim(s) 1 and 13 is/are rejected.
- 7) ☒ Claim(s) 2-23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: EP0631147A1.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 13 is objected to because of the following informalities: The phrase "flux to into" in Line 5 is unclear. It is suggested that the phrase be amended to read "flux to" or "flux into". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mallory et al. (EP0631147A1) in view of Miller et al. (4000458).

3. With respect to Claim 1, Mallory et al. disclose a method for estimating at least one measurement/object property of an object (apparatus for measuring conductance, Col. 2, Lines 42-45 and Fig. 1) where the method comprises:

generating a time-varying eddy current in a wall of the object (AC voltage in the drive coil causes electromagnetic field to extend into the sample (Col. 7, Lines 1-6) and

Art Unit: 2862

eddy current measurements are taken (Col. 3, Lines 11-15)) utilizing a pulsed-signal transmitter (AC voltage can mean any time-varying voltage, Col. 5, Lines 30-34);

measuring the time-varying eddy current (perform eddy current measurements on a number of samples, Col. 7, Lines 43-47);

fitting the time-varying measured eddy current to a parameterized polynomial (polynomial function is determined which best fits the measured voltage pairs, Col. 8, Lines 7-25);

and interpreting the parameterized polynomial to determine the at least one measurement/object property of the object (eight calibrated lift off curves are generated for samples of known resistivity (Col. 8, Lines 43-50), intersecting curves are generated to provide known voltage pairs (Col. 8, Line 51 to Col. 9, Line 11), and a conductance function is determined (Col. 9, Lines 12-35)).

Mallory et al. teach that the object can be metal by reference to Miller et al. as a conventional apparatus for this type of testing (Col. 1, Lines 23-27).

Miller et al. teach a method for estimating at least one measurement/object property of a metal object (measurement of electrical conductivity of metal thin films, Col. 1, Lines 56-59).

It would be obvious to one skilled in the art at the time of the invention to use the method of Mallory et al. to estimate a property of a metallic thin film of Miller et al. as Mallory et al. teaches that it is well known to obtain such measurements by eddy current testing and that Miller et al. disclose a conventional apparatus for this type of testing.

4. With respect to Claim 13, Mallory et al. disclose an apparatus for estimating at least one measurement/object property of an object (apparatus for measuring conductance, Col. 2, Lines 42-45 and Fig. 1) where the apparatus comprises:

- a drive coil (drive coil, Col. 5, Lines 38-39);

- a pulse generator operable to energize the drive coil in a pulsed manner (method for producing AC voltage in the drive coil (Col. 2, Lines 57-58) and AC voltage can mean any time-varying voltage (Col. 5, Lines 30-34)) to transmit a transient electromagnetic flux to into an object under inspection (AC voltage in the drive coil causes electromagnetic field to extend into the sample, Col. 7, Lines 1-6);

- at least one sensor operable to sense and generate output signals representative of time varying eddy currents produced in the object under inspection from the transient electromagnetic flux (meter measures induced voltage in a sense coil, Col. 7, Lines 7-15 and Fig. 1, Item 10);

- a processor (Fig. 1, Item 12) operatively coupled to said at least one sensor and configured to:

- measure the output signals representative of the time-varying eddy currents resulting from the transient electromagnetic flux (processor processes output signal from meter, Col. 8, Lines 7-13);

Art Unit: 2862

fit the measured output signal to a parameterized polynomial (processor determines a polynomial function of in-phase versus quadrature voltage which best fits the measured voltage pairs, Col. 8, Lines 14-25); and

interpret the parameterized polynomial to determine the at least one measurement/object property of the object (lift-off curves associated with resistivities, Col. 8, Lines 43-50, also, for unknown sample, relationship with conductivity is taught, Col. 9, Lines 12-35).

Mallory et al. teach that the object can be metal by reference to Miller et al. as a conventional apparatus for this type of testing (Col. 1, Lines 23-27).

Miller et al. teach a method for estimating at least one measurement/object property of a metal object (measurement of electrical conductivity of metal thin films, Col. 1, Lines 56-59).

It would be obvious to one skilled in the art at the time of the invention to use the method of Mallory et al. to estimate a property of a metallic thin film of Miller et al. as Mallory et al. teaches that it is well known to obtain such measurements by eddy current testing and that Miller et al. disclose a conventional apparatus for this type of testing.

***Allowable Subject Matter***

5. Claims 2-12 and 14-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2862

6. Claims 24-32 appear to contain subject matter which is allowable under the prior art.

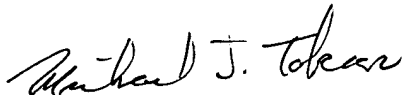
### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. 6188969, 6876949, 5034689, 5847562 as disclosing sensors with data analysis by polynomial curve-fitting.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Diane E. Jones. The examiner can normally be reached on M-F.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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